FACT SHEET FOR NPDES PERMIT NO. WA0023281

Town of Wilkeson Wastewater Treatment Plant

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES) of permits, which is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the state of Washington on the basis of [Chapter 90.48 Revised Code of Washington (RCW)] which defines the Department of Ecology's (Department) authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the state include procedures for issuing permits [Chapter 173-220 Washington Administrative Code (WAC)], technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

GENERAL INFORMATION	
Applicant:	Town of Wilkeson 540 Church Street P.O. Drawer C Wilkeson WA 98396
Facility Name and Address:	Wilkeson Wastewater Treatment Plant 163rd and Highway 165 Wilkeson, Pierce County, Washington
Type of Treatment:	Secondary Extended Aeration Activated Sludge Lagoon with UV Disinfection
Discharge Location:	Wilkeson Creek at Wilkeson Latitude: 47° 06' 33" N Longitude: 122° 03' 02" W
Water Body ID Number:	WA-10-1060

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

A major expansion to the wastewater treatment facility is under construction. The new plant is scheduled for completion in the summer of 1999. The treatment plant will be a secondary activated sludge treatment facility with ultraviolet disinfection. This permit will be issued for the new facility.

HISTORY

The previous Wilkeson wastewater treatment plant, constructed in 1971, consisted of two aerated lagoons in series followed by chlorine disinfection. The original hydraulic design capacity of the plant was 70,000 gallons per day (gpd). In 1995, Wilkeson prepared an Engineering Report for a more advanced treatment plant. This treatment plant is designed to accommodate anticipated growth as well as the more stringent water quality-based requirements imposed by the Puyallup River TMDL and aquatic life toxicity requirements. Plans and Specifications have been approved.

COLLECTION SYSTEM STATUS

The collection system is a conventional sanitary sewer system with two pump stations. Pump station No. 1 pumps the wastewater across Wilkeson Creek. Pump station No. 2 pumps the wastewater to the treatment plant headworks. Both pump stations have overflow discharge pipes which allow the sewage to bypass to the creek if the pumps fail or are overloaded. The collection system has experienced a high degree of infiltration and inflow during wet weather which increases the potential for illegal discharge.

Pump Stations have neither adequate storage nor auxiliary power supplies available in the event of a power outage. The only alarm system is a light indicating when the pumps are running.

In 1996-97, the Town of Wilkeson constructed new sanitary sewers to separate out the combined discharges in the downtown area.

Upgrades to the lift stations are currently under construction and include additional capacity, new pumps and controls , alarms, emergency power provisions and removal or valving of overflow points.

These were considered the most critical upgrades. Additional infiltration and inflow (I/I) projects may be necessary in the future.

TREATMENT PROCESSES

The new facility consists of new headworks with a channel grinder and bypass bar screen, grit removal system, influent flow measurement, bioselectors, extended aeration basin, two secondary clarifiers, effluent flow measurement, WAS/Scum pump station, sludge holding pond, nonpotable water pump station, ultraviolet disinfection, sludge dewatering and drying, operations building and laboratory facilities and auxiliary generator.

The treatment plant is classified as Class II reliability which requires standby equipment and power for pumping, aeration and disinfection. Alarms are required to monitor equipment failure, loss of power, disinfection, high water level and other critical components.

There are no significant industrial facilities present or planned for Wilkeson. The new treatment plant will be a Class II facility for operator certification requirements. Wilkeson currently has 1.5 full time employees budgeted to wastewater treatment including the collection system and lift stations, stormwater,

new construction inspections, laboratory, and administration. The operator in charge is certified at the Class 2 level. The treatment plant is operated on one shift, Monday-Friday.

DISCHARGE OUTFALL

Secondary treated and disinfected effluent is discharged from the facility at the bank of Wilkeson Creek.

RESIDUAL SOLIDS

Grit, rags, scum, and debris are disposed of as solid waste at the local landfill. Waste solids removed from the aeration unit will be stored in the sludge storage lagoon, dewatered, dried, and contract hauled for disposal.

PERMIT STATUS

The previous permit for this facility was issued on June 30, 1994. The previous permit placed effluent limitations on 5-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), pH, fecal coliform bacteria, ammonia, chlorine, and copper. In April 1997, the permit was modified to remove the limits and monitoring requirements for copper. Monitoring conducted by the Department and the Permittee showed no reasonable potential to exceed the permit limits. In addition, the effluent monitoring would not accurately characterize the effluent from the new treatment facility. An application for permit renewal was submitted to the Department on May 21, 1999, and accepted by the Department on July 14, 1999.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility received its last construction progress inspection on July 9, 1999. The last Class 1 compliance inspection was conducted in June 1998.

During the last five years, Wilkeson has had numerous effluent limit violations. The most frequent violations have been for fecal coliform, BOD, TSS, and ammonia. Wilkeson also reported occasional bypasses of untreated, disinfected wastewater discharged to Wilkeson Creek.

Problems will continue until the new plant is operational. The Town is under a hookup moratorium until the new treatment plant is on line. Construction is in progress and scheduled for completion later this summer.

WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge was reported in the NPDES application and in discharge monitoring reports. For the past year, the lagoon effluent is characterized as follows:

Table 1: Lagoon Effluent Characterization

Parameter	**Monthly Averages 1998**
Monthly Average Flow	0.022 to 0.082 MGD
pH	5.7 to 7.7 standard units
Temperature (winter)	45 degrees F
Temperature (summer)	61-68 degrees F
Fecal Coliform Bacteria	Up to 81 cfu/100ml.
BOD	16 to 45 mg/L
Chlorine Residual	0.1 to 1.2 mg/L
Total Suspended Solids	5 to 66 mg/L
Ammonia(as N)	0.4 to 20 mg/L
	1997 Ecology Metals Study
Copper (Total Recoverable)	13 to 37 ug/L
Mercury	0 to 1.2 ug/L
Zinc (Total Recoverable)	18 to 73 ug/L
Hardness	87. mg/L as $CaCO_3$

Table 2: Predicted Extended Aeration Activated Sludge Facility Effluent

Parameter	**Monthly Averages**
Design Flow	0.13 MGD
pH	6 to 9 standard units
Temperature (winter)	approximately 45 degrees F
Temperature (summer)	63 to 68 degrees F
Fecal Coliform Bacteria	Less than 200 cfu/100ml.
BOD	Less than 30 mg/L
Chlorine Residual	None
Total Suspended Solids	Less than 30 mg/L
Ammonia(as N)	mg/L
Dissolved Oxygen	2-5 mg/L
Metals	less than lagoon effluent

SEPA COMPLIANCE

The Town of Wilkeson issued a Determination of Nonsignificance for the treatment plant upgrades on June 12, 1995.

PROPOSED PERMIT LIMITATIONS

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992.) The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology and water quality-basis. The limits

necessary to meet the rules and regulations of the state of Washington were determined and included in this permit. The Department does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department.

DESIGN CRITERIA

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

The design criteria for this treatment facility are taken from the December 1995, Town of Wilkeson, Comprehensive Sewer Plan/Facilities Plan prepared by CHS Engineers, Inc. and are as follows:

Table 2: Design Standards for Wilkeson WWTP.

Parameter	Design Quantity
Monthly average flow (max. month)	0.13 MGD
Monthly average dry weather flow	0.065 MGD
Monthly average wet weather flow	0.11 MGD
Peak hour flow	0.36 MGD
BOD_5 influent loading	230 lbs/day
TSS influent loading	230 lbs/day
Design population	850

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in Chapter 173-221 WAC (state). These regulations are performance standards that constitute all known available and reasonable methods of prevention, control, and treatment for municipal wastewater.

The following technology-based limits for pH, fecal coliform, BOD_5, and TSS are taken from Chapter 173-221 WAC are:

Table 3: Technology-based Limits.

Parameter	Limit
pH	shall be within the range of 6 to 9 standard units.
Fecal Coliform Bacteria	Monthly Geometric Mean = 200 organisms/100 mL Weekly Geometric Mean = 400 organisms/100 mL
BOD_5 (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L

Parameter	Limit
TSS (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L

The following technology-based mass limits are based on WAC 173-220-130(3)(b) and 173-221-030(11)(b).

Monthly effluent mass loadings (lbs/day) were calculated as the maximum monthly design flow (0.13 MGD) x Concentration limit (30 mg/L) x 8.34 (conversion factor) = 32.5 mass limit lbs/day.

The weekly average effluent mass loading is calculated as 1.5 x monthly loading = 49 lbs/day.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin-wide total maximum daily loading study (TMDL).

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the State of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The state was issued 91 numeric water quality criteria for the protection of human health by the U.S. EPA (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the state of Washington.

ANTIDEGRADATION

The State of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the

water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

The Department has reviewed existing records and is unable to determine if ambient water quality is either higher or lower than the designated classification criteria given in Chapter 173-201A WAC; therefore, the Department will use the designated classification criteria for this water body in the proposed permit. The discharges authorized by this proposed permit should not cause a loss of beneficial uses.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

MIXING ZONES

The Water Quality Standards allow the Department to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to Wilkeson Creek, which is designated as a Class A receiving water in the vicinity of the outfall. Characteristic uses include the following:

water supply (domestic, industrial, agricultural); stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

Fecal Coliforms	100 organisms/100 mL maximum geometric mean
Dissolved Oxygen	8 mg/L minimum
Temperature	18 degrees Celsius maximum or incremental increases above background
pH	6.5 to 8.5 standard units
Turbidity	less than 5 NTUs above background
Toxics	No toxics in toxic amounts (see Appendix C for numeric criteria for toxics of concern for this discharge)

PUYALLUP RIVER BASIN TOTAL MAXIMUM DAILY LOAD FOR BOD AND AMMONIA

Section 303(d) of the Clean Water Act requires states and the EPA to establish total maximum daily loads (TMDLs) for waters which cannot meet water quality standards after application of technology based controls. Due to the potential for dissolved oxygen problems in the lower Puyallup River, the Department established a seasonal TMDL for ammonia and biochemical oxygen demand (BOD) throughout the Puyallup River basin and tributaries effective May 1, through October 31. The maximum loadings established for this river basin were set a 20,322 pounds per day of BOD_5 and 3,350 pounds per day of Ammonia as N. This includes an unallocated reserve capacity of 3,670 pounds per day of BOD_5 and 1,200 pounds per day of ammonia.

Wasteload allocations (WLAs) established for the Wilkeson Wastewater Treatment Plant discharge are 26 pounds per day of BOD_5 and 6.5 pound per day of Ammonia as N.

The TMDL also provides an option to dischargers allowing them to reduce the WLA for ammonia for an increase in the WLA for BOD_5 since both parameters together influence dissolved oxygen. For each pound of ammonia reduction, the WLA for BOD_5 may increase by 13.4 pounds per day. The net effect of this change in the allocation is considered negligible.

In addition, a mediation settlement on May 29,1998, established a process for allocation of the reserve capacity. A municipal reserve account was established for the Town of Wilkeson as 10 pounds/day of BOD_5 and 3.2 pounds/day of ammonia (or 52 pounds/day of BOD_5 if ammonia allocation was exchange according to the procedure mentioned above). This reserve account may be accessed in accordance with the provisions of the settlement agreement.

At this time, the Permittee has not proposed to request any portion of their reserve account. The Facility Plan amendment submitted to the Department for the plant expansion does use the BOD_5/ammonia exchange ratio of 13.4 to 1. The BOD WLA increases from 26 to the technology based maximum of 49 pounds/day. The ammonia WLA therefore must decrease by 1.7 pounds to 4.8 pounds.

CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Pollutant concentrations in the proposed discharge exceed water quality criteria with technology-based controls which the Department has determined to be AKART. A mixing zone is authorized in accordance with the geometric configuration, flow restriction, and other restrictions for mixing zones in Chapter 173-201A WAC and are defined as follows:

Wilkeson Creek is glacially fed and tends to meander varying in both course and width from year to year. River flows general peak in June during the snow melt. Annual minimum flows generally occur during the months of August, September, and October. The dilution factors of effluent to receiving water that occur within these zones have been determined at the critical condition by the use of the flow restriction of 25 percent and 2.5 percent of the river volume during critical conditions. Peaking factor is approximately 2.0.The dilution factors were calculated as follows:

- Annual Ambient 7Q10 low flow: 8.9 cfs = 5.7 MGD
- Maximum day dry season design flow (May-October) 0.13 MGD
- Maximum monthly average dry season 1997-98 (May-October) = 0.065 MGD

Acute Zone:

(Maximum day dry weather flow (MDDWF) +0.025*7Q10)/MDDWF

= (0.13MGD + 0.025*5.7 MGD)/0.13MGD = 2.1

Chronic Zone:

(Monthly average dry weather flow(MADWF) +0.25*7Q10)/ MADWF

= (0.065MGD + 0.25*5.7MGD)/0.0.65MGD = 23.0

	Acute	Chronic
Aquatic Life	2.1	23

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water.

The critical condition for Wilkeson Creek is the seven day average low river flow with a recurrence interval of ten years (7Q10). Ambient data at critical conditions in the vicinity of the Wilkeson outfall was taken from the TMDL study which considered both historical data and an intensive monitoring study conducted in September-October 1990, the Puyallup Basin Metals Survey, April 1997, and ambient data collected by our Environmental Assessment over the past few years. The ambient background data used for this permit includes:

Parameter	Value used
7Q10 low flow	8.9 cfs
Velocity	1.5 ft/sec
Depth	0.2 feet
Width	30.4 feet
Roughness (Manning)	n=0.04
Slope	1.4 E-03 (0.8 degrees)
Temperature	303d listed as exceeding standard
pH (high)	8.2
Dissolved Oxygen	8.0 mg/L
Total Ammonia-N	0.07 mg/L
Fecal Coliform	92/100 mL dry weather (>100/100 mL storm related)
Turbidity	2.5 NTU
Hardness	56.3 mg/L as CaCO3
Zinc	5.5 ug/L (total recoverable estimated value)
All Other Metals	0.0 (below detection limits)

The impacts of dissolved oxygen deficiency, temperature, pH, fecal coliform, chlorine, ammonia, metals, and other toxics were determined as shown below, using the dilution factors described above.

Temperature--The impact of the discharge on the temperature of the receiving water was modeled by simple mixing analysis at critical condition. No temperatures increase is allowed which would raise the receiving water temperature by more than 0.3 degrees Celsius. The largest variation between receiving water and effluent temperature would occur when the receiving water temperature at the critical condition is 15 degrees Celsius and the maximum effluent temperature is 20 degrees Celsius. (20 + (23-1)*18)/23 = 15.1

The predicted resultant temperature at the boundary of the chronic mixing zone is 15.2 degrees Celsius and the incremental rise is a maximum of 0.2 degrees Celsius. It is anticipated that the effluent from the new treatment plant will be lower than the existing lagoon discharge.

Temperature and pH--The impact of pH and temperature were modeled using the calculations from EPA, 1988. The input variables were dilution factor 23, upstream temperature 18 degrees Celsius, upstream pH 8.2, upstream alkalinity 39 (as mg $CaCO_3$/L), effluent temperature 20 degrees Celsius, effluent pH of 6, effluent pH of 9, and effluent alkalinity 102 (as mg $CaCO_3$/L).

Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters. Therefore, the technology-based effluent limitations for pH was placed in the permit and temperature was not limited.

Fecal coliform--The numbers of fecal coliform were modeled by simple mixing analysis using the technology-based limit of 400 organisms per 100 ml and a dilution factor of 23.

Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters with the technology-based limit. Therefore, the technology-based effluent limitation for fecal coliform bacteria was placed in the proposed permit.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters or from having surface water quality-based effluent limits.

The toxics ammonia is predicted to be present in the discharge from the new treatment plant. It is also a parameter listed in the Puyallup TMDL.

Seasonal effluent limits for ammonia were calculated using seasonal data from the final Puyallup River TMDL and methods from EPA, 1991 as shown in Appendix C. During May, through October, the mass discharge of ammonia cannot exceed 4.8 lbs/day as discussed earlier in this fact sheet. At 7.8 mg/L, 0.077 MGD is the maximum flow that could be discharged to meet these requirements. If flows are greater than 0.077 MGD, a more stringent ammonia concentration limit is required to meet the 4.8 lbs/day mass limit. At design maximum day summer flow of 0.13 MGD, the maximum concentration that could be discharged is 4.4 mg/L.

The resultant effluent limits are as follows:

	Monthly Average	Daily Maximum
Ammonia as N (May-October)	3.3 mg/L	7.5 mg/L 4.8 lb/day
Ammonia as N (November-April)	8.2 mg/L	18.9 mg/L

WHOLE EFFLUENT TOXICITY

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing.

Toxicity caused by unidentified pollutants is not expected in the effluent from this discharge as determined by the screening criteria given in Chapter 173-205 WAC. Therefore, no whole effluent toxicity testing is required in this permit. The Department may require effluent toxicity testing in the future if it receives information that toxicity may be present in this effluent.

HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the applicant's discharge is unlikely to contain chemicals regulated for human health, or, (3) does not contain chemicals of concern based on existing data or knowledge. The discharge will be re-evaluated for impacts to human health at the next permit reissuance.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined through a review of the discharger characteristics and effluent characteristics that this discharge has no reasonable potential to violate the Sediment Management Standards.

GROUND WATER QUALITY

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED June 3, 1994

Parameter	***Existing:***		***Proposed:***	
	Monthly	**Weekly**	**Monthly**	**Weekly**
BOD	30 mg/L 18 lb/day 85% removal	45 mg/L 26 lb/day	30 mg/L 32.5 lb/day 85% removal	45 mg/L 49 lb/day
TSS	30 mg/L 32 lb/day 85% removal	45 mg/L 48 lb/day	30 mg/L 32.5 lbs/day 85% removal	45 mg/L 49lbs/day
pH	6-9 standard units		6-9 standard units	
Fecal Coliform	200/100ml	400/100ml	200/100ml	400/100ml
Ammonia as N (May 1 - Oct 31)	6.6 mg/L	15 mg/L 6.5 lb/day	3.3 mg/L	7.5 mg/L 4.8 lb/day
Ammonia As N (Nov 1 - April 30)	15 mg/L	26 mg/L	8.2 mg/L	18.9 mg/L
Chlorine	24 ug/L	62 ug/L	UV disinfection	----

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

Monitoring of sludge quantity and quality is necessary to determine the appropriate uses of the sludge. Sludge monitoring is required by the current state and local solid waste management program and also by EPA under 40 CFR 503.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of Ecology's *Permit Writer's Manual* (July 1994) for activated sludge facilities less than 2 MGD.

LAB ACCREDITATION

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories.* Upon completion of construction of the new laboratory, Wilkeson may request performance evaluation samples to achieve laboratory accreditation.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3. are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

PREVENTION OF FACILITY OVERLOADING

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require the Permittee to take the actions detailed in proposed permit requirement S.4. to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants. Condition S.4. restricts the amount of flow.

OPERATION AND MAINTENANCE (O&M)

The proposed permit contains condition S.5. as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

RESIDUAL SOLIDS HANDLING

To prevent water quality problems the Permittee is required in permit condition S7. to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503. The disposal of other solid waste is under the jurisdiction of the Pierce County Health Department.

PRETREATMENT

Federal and State Pretreatment Program Requirements

Under the terms of the addendum to the "Memorandum of Understanding between Washington Department of Ecology and the United States Environmental Protection Agency, Region 10" (1986), the Department has been delegated authority to administer the Pretreatment Program [i.e. act as the Approval Authority for oversight of delegated Publicly Owned Treatment Works (POTWs)]**.** Under this delegation of authority, the Department has exercised the option of issuing wastewater discharge permits for significant industrial users discharging to POTWs which have not been delegated authority to issue wastewater discharge permits.

There are a number of functions required by the Pretreatment Program which the Department is delegating to such POTWs because they are in a better position to implement the requirements (e.g. tracking the number and general nature of industrial dischargers to the sewerage system). The requirements for a Pretreatment Program are contained in Title 40, part 403 of the Code of Federal Regulations. Under the requirements of the Pretreatment Program [40 CFR 403.8(f)(1)(iii)], the Department is required to approve, condition, or deny new discharges or a significant increase in the discharge for existing significant industrial users (SIUs) [40 CFR 403.8 (f)(1)(i)].

The Department is responsible for issuing State Waste Discharge Permits to SIUs and other industrial users of the Permittee's sewer system. Industrial dischargers must obtain these permits from the Department prior to the Permittee accepting the discharge [WAC 173-216-110(5)] (Industries discharging wastewater that is similar in character to domestic wastewater are not required to obtain a permit. Such dischargers should contact the Department to determine if a permit is required.). Industrial dischargers need to apply for a State Waste Discharge Permit sixty days prior to commencing discharge. The conditions contained in the permits will include any applicable conditions for categorical discharges, loading limitations included in contracts with the POTW, and other conditions necessary to assure compliance with state water quality standards and biosolids standards.

The Department requires this POTW to fulfill some of the functions required for the Pretreatment Program in the NPDES permit (e.g., tracking the number and general nature of industrial dischargers to the sewage system). The POTW's NPDES permit will require that all SIUs currently discharging to the POTW be identified and notified of the requirement to apply for a wastewater discharge permit from the Department. None of the obligations imposed on the POTW relieve an industrial or commercial discharger of its primary responsibility for obtaining a wastewater discharge permit (if required), including submittal of engineering reports prior to construction or modification of facilities (40 CFR 403.12(j) and WAC 173-216-070 and WAC 173-240-110, et seq.).

Wastewater Permit Required

RCW 90.48 and WAC 173-216-040 require SIUs to obtain a permit prior to discharge of industrial waste to the Permittee's sewerage system. This provision prohibits the POTW from accepting industrial wastewater from any such dischargers without authorization from the Department.

Requirements for Routine Identification and Reporting of Industrial Users

The NPDES permit requires non-delegated POTWs to " take continuous, routine measures to identify all existing, new, and proposed SIUs and potential significant industrial users (PSIUs) discharging to the Permittee's sewerage system." Examples of such routine measures include regular review of business tax licenses for existing businesses and review of water billing records and existing connection authorization records. System maintenance personnel can also be diligent during performance of their jobs in identifying and reporting as-yet unidentified industrial dischargers. Local newspapers, telephone directories, and word-of-mouth can also be important sources of information regarding new or existing discharges. The POTW is required to notify an industrial discharger, in writing, of their responsibilities regarding application for a state waste discharge permit and to send a copy of the written notification to the Department. The Department will then take steps to solicit a state waste discharge permit application.

Requirements for Performing an Industrial User Survey

This POTW has the potential to serve significant industrial or commercial users and is required to perform an Industrial User Survey. The goal of this survey is to develop a list of SIUs and PSIUs, and of equal importance, to provide sufficient information about industries which discharge to the POTW, to determine which of them require issuance of state waste discharge permits or other regulatory controls. An Industrial User Survey is an important part of the regulatory process used to prevent interference with treatment processes at the POTW and to prevent the exceedance of water quality standards. The Industrial User Survey also can be used to contribute to the maintenance of sludge quality, so that sludge can be a useful biosolids product rather than an expensive waste problem. An Industrial User Survey is a rigorous method for identifying existing, new, and proposed significant industrial users and potential significant industrial users. A complete listing of methodologies is available in the Department of Ecology guidance document entitled "Conducting an Industrial User Survey".

Annual Submittal of List of Industrial Users

This provision requires the POTW to submit annually a list of existing and proposed SIUs and PSIUs. This requirement is intended to update the Department on an annual basis of the status of industrial users in the POTW's service area, without requiring the POTW to go through the process of performing a formal Industrial User Survey. This provision is normally applied to POTWs not serving industrial or commercial users. Although this permit does not require performance of an Industrial User Survey, the Permittee is nevertheless required under the previous section, to take adequate continuous routine measures to identify existing and new industrial discharges.

Duty to Enforce Discharge Prohibitions

This provision prohibits the POTW from authorizing or permitting an industrial discharger to discharge certain types of waste into the sanitary sewer. The first portion of the provision prohibits acceptance of pollutants which cause pass through or interference. The definitions of pass through and interference are in Appendix B of the fact sheet.

The second portion of this provision prohibits the POTW from accepting certain specific types of wastes, namely those which are explosive, flammable, excessively acidic, basic, otherwise corrosive, or obstructive to the system. In addition wastes with excessive BOD, petroleum based oils, or which result in toxic gases are prohibited to be discharged. The regulatory basis for these prohibitions is 40 CFR Part 403, with the exception of the pH provisions which are based on WAC 173-216-060.

The third portion of this provision prohibits certain types of discharges unless the POTW receives prior authorization from the Department. The discharges include cooling water in significant volumes, stormwater and other direct inflow sources, and wastewaters significantly affecting system hydraulic loading, which do not require treatment.

Support by the Department for Developing Partial Pretreatment Program by POTW

The Department has committed to providing technical and legal assistance to the Permittee in fulfilling these joint obligations, in particular assistance with developing an adequate sewer use ordinance, notification procedures, enforcement guidelines, and developing local limits and inspection procedures.

OUTFALL EVALUATION

Proposed permit condition S.8. requires the Permittee to conduct an outfall inspection and submit a report detailing the findings of that inspection. The purpose of the inspection is to determine the condition of the discharge pipe and diffusers and to determine if sediment is accumulating in the vicinity of the outfall.

EFFLUENT COPPER STUDY

During a TMDL study conducted in 1990, and a Treatment Plant Metals Survey conducted in 1997, copper was found in the effluent from Wilkeson's old lagoon system that had the potential to violate standards at the edge of the mixing zone. Ambient data collected in Wilkeson Creek showed copper to be below detection levels. Wilkeson now has an upgraded facility with better solids removal capabilities, which should reduce the levels of copper in the effluent. Since there are no effluent data available for the new facility the Department has proposed permit condition S.9. to require an effluent study to gather information on copper to determine if the effluent has a reasonable potential to cause a violation of the water quality standards. This effluent study may be waived by the Department should the Department’s Environmental Assessment Program (EAP) schedule a sampling study of Wilkeson Creek during the term of this permit.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual municipal NPDES permits issued by the Department.

Condition G1 requires responsible officials or their designated representatives to sign submittals to the Department. Condition G2 requires the Permittee to allow the Department to access the treatment system, production facility, and records related to the permit. Condition G3 specifies conditions for modifying, suspending or terminating the permit. Condition G4 requires the Permittee to apply to the Department prior to increasing or varying the discharge from the levels stated in the permit application. Condition G5 requires the Permittee to construct, modify, and operate the permitted facility in accordance with approved engineering documents. Condition G6 prohibits the Permittee from using the permit as a basis for violating any laws, statutes or regulations. Conditions G7 relates to permit renewal. Condition G8 prohibits the reintroduction of removed substances back into the effluent. Condition G9 states that the Department will modify or revoke and reissue the permit to conform to more stringent toxic effluent standards or prohibitions. Condition G10 incorporates by reference all other requirements of 40 CFR 122.41 and 122.42. Condition G11 notifies the Permittee that additional monitoring requirements may be established by the Department. Condition G12 requires the payment of permit fees. Condition G13 describes the penalties for violating permit conditions.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards, Sediment Quality Standards, or Ground Water Standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the State of Washington. The Department proposes that this permit be issued for five years.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Metcalf and Eddy.

1991. Wastewater Engineering, Treatment, Disposal, and Reuse. Third Edition.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

1994. Permit Writer's Manual. Publication Number 92-109

Water Pollution Control Federation.

1976. Chlorination of Wastewater.

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue (or issue) a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on September 5, 1999, and September 12, 1999 in *The Tacoma News Tribune* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) on December 15, 1999, in *The Tacoma News Tribune* to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (360) 407-6279, or by writing to the address listed above.

This permit and fact sheet were written by Kathy Cupps**.**

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a pollutant on an organism that occurs within a short period of time, usually 48 to 96 hours.

AKART-- An acronym for "all known, available, and reasonable methods of prevention, control, and treatment".

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation --The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month (except in the case of fecal coliform). The daily discharge is calculated as the average measurement of the pollutant over the day.

Average Weekly Discharge Limitation -- The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The daily discharge is calculated as the average measurement of the pollutant over the day.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD_5--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD_5 is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a pollutant on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Combined Sewer Overflow (CSO)--The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of four discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring –Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial User-- A discharger of wastewater to the sanitary sewer which is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Infiltration and Inflow (I/I)--"Infiltration" means the addition of ground water into a sewer through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of precipitation-caused drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a sewer.

Interference -- A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal and;

Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--A volume that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in State regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

Pass through -- A discharge which exits the POTW into waters of the State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Potential Significant Industrial User--A potential significant industrial user is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;

b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Significant Industrial User (SIU)--

1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;

2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

   Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

   *The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids are the particulate materials in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration or mass of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C--TECHNICAL CALCULATIONS

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on the Department's homepage at http.www:wa.gov.ecology.

APPENDIX D--RESPONSE TO COMMENTS

This response to comments (RTC) is an appendix to the fact sheet for the above referenced National Pollutant Discharge Elimination System (NPDES) permit. The RTC summarizes comments received during the 30-day public notice and comment period on the draft permit, and provides the Department of Ecology (Department) response. All changes to the draft permit are noted below. The Department has determined to issue this permit as revised.

Christina Murray Comment:

1. Comment:

   In November 1995, the Copper concentrations exceeded water quality criteria by a factor of 1.8 (Puyallup Basin Treatment Plant Metals Survey, pub #97-303, 1997). And again on June 27, 1996, the last sample that was taken stated that the concentration was 60 ug/L when the maximum daily amount was only 42.5 ug/L But despite these violations, their permit was modified to remove the limits and monitoring requirements for copper in April of 1997. So the question remains, if there were still problems with copper levels then why were the regulations diminished? So, in conclusion, I am asking that the new NPDES permit require the Wilkeson Wastewater Treatment Plant to monitor the levels of copper being discharged.

Karen Dinicola, Citizens for a Healthy Bay Comment:

2. Comment:

   The plant has had numerous problems with violations of BOD5, TSS, fecal coliform, and ammonia in the past year. In the new permit, BOD5 concentration limits are the same but the allowable loads are higher. We assume that Wilkeson is planning to add new hookups to their system and support this change in the permit only if it is consistent with the TMDL allocation agreement accepted last year AND if the operation comes into consistent compliance with other problem parameters.

   Copper has also been removed from the list of parameters to be monitored in this permit. The last copper sample found in the DMRs was collected on June 27, 1996 with an analytical result of 60 ug/L, a violation of the permit limit of 42.5 ug/L. Copper was dropped in 1997, with the release of Ecology publication #97-303 "Puyallup Basin Treatment Plant Metals Survey." However, this publication identified copper as a problem contaminant at the Wilkeson WWTP. On page 13, the report states that "Whole effluent copper concentrations were greater than both acute and chronic state water quality criteria during all sampling events… The November copper concentration at the edge of the acute dilution zone exceeded the hardness adjusted acute water quality standard by a factor of 1.8." Unlike BOD, fecals, and nutrients, copper is a cumulative toxic compound and the loading could pose a significant long-term problem for Wilkeson and South Prairie Creeks. Copper must be monitored at this plant.

   Response to comments 1 and 2:

   During the TMDL study conducted in 1990, and the Treatment Plant Metals Survey conducted in 1997, copper was found in the effluent from Wilkeson's old lagoon system that had the potential to violate standards at the edge of the mixing zone. Ambient data collected in Wilkeson Creek showed copper to be below detection levels. Wilkeson now has an upgraded facility with better

solids removal capabilities, which should reduce the levels of copper in the effluent. Since there are no effluent data available for the new facility the Department has proposed permit condition S.9. to require an effluent study in the later part of the permit term to gather information on copper to determine if the effluent has a reasonable potential to cause a violation of the water quality standards. This effluent study may be waived by the Department should the Department's Environmental Assessment Program (EAP) schedule a sampling study of Wilkeson Creek during the term of this permit. No change to permit.